



US 20070070050A1

(19) **United States**(12) **Patent Application Publication****Westerman et al.**(10) **Pub. No.: US 2007/0070050 A1**(43) **Pub. Date: Mar. 29, 2007**(54) **MULTI-TOUCH CONTACT MOTION
EXTRACTION**(75) Inventors: **Wayne Westerman**, San Francisco, CA
(US); **John G. Elias**, Townsend, DE
(US)

Correspondence Address:

**WONG, CABELLO, LUTSCH, RUTHERFORD
& BRUCCULERI,****L.L.P.****20333 SH 249****SUITE 600****HOUSTON, TX 77070 (US)**No. 09/919,266, filed on Jul. 31, 2001, now Pat. No.
6,888,536, which is a division of application No.
09/236,513, filed on Jan. 25, 1999, now Pat. No.
6,323,846.(60) Provisional application No. 60/072,509, filed on Jan.
26, 1998.**Publication Classification**(51) **Int. Cl.**
G09G 5/00 (2006.01)(52) **U.S. Cl.** **345/173**(73) Assignee: **FINGERWORKS, INC.**, Houston, TX
(US)(21) Appl. No.: **11/559,763**(22) Filed: **Nov. 14, 2006****Related U.S. Application Data**(60) Continuation of application No. 11/015,434, filed on
Dec. 17, 2004, which is a continuation of application(57) **ABSTRACT**

Apparatus and methods are disclosed for simultaneously tracking multiple finger and palm contacts as hands approach, touch, and slide across a proximity-sensing, multi-touch surface. Identification and classification of intuitive hand configurations and motions enables unprecedented integration of typing, resting, pointing, scrolling, 3D manipulation, and handwriting into a versatile, ergonomic computer input device.

